## REMARKS

In this paper, claims 11, 38, 43, 44, 47 and 48 are currently amended, and claims 54-68 have been added. After entry of the above amendment, claims 1-68 are pending.

The filing receipt and Office Action contain spelling errors in the names of the inventors. "Kirmoto" should be "Kirimoto," and "Yamahita" should be "Yamashita." The errors appear to be PTO errors, since the correct spellings appear on the originally filed documents.

Support for the previous amendment made to claim 1 and the current amendment to claim 11 may be found at column 1, lines 6-7 that recite a cable operated disc brake for a bicycle. Fig. 2 shows the mounting bracket (28a) structured and dimensioned to be attached to a bicycle.

For claim 38, Fig. 44 shows that the second portion of the guide surface is formed by a protuberance (98i) that extends towards the cable support (44) as shown in Fig. 2.

For claim 43, the specification at column 10, lines 55-67 and Figs. 4, 7 and 48-51 describe an adjusting mechanism (56, 99, 102) that adjusts the biasing force applied between the caliper housing (30) and the actuating arm (98) in addition to changes of biasing force caused by rotation of the actuating arm relative to the caliper housing.

Claim 44 was amended to add the article "a" before "first end."

For claim 47, the specification at column 7, lines 33-48 and Figs. 4, 13 and 15 describe a cable adjusting bolt (73) fitted within the opening (72) in the cable support (44) through which an inner cable (25a) passes.

For claim 48, Figs. 2, 7 and 10 show that the caliper housing (30) includes a mounting flange (43) for mounting the caliper housing (30) to the bicycle, and the specification describes at column 7, lines 27-32 that the mounting flange (43) includes a slot (70) that allows adjustment of the caliper housing (30) to and from the rotor such that the caliper housing is axially fixed relative to the rotor during operation of the actuating arm.

For claim 54, Figs. 2 and 3 show the cable (25a), when coupled to the cable clamp (103, 104), approaches the guide surface from the opening (72) in the cable support (44) essentially in a straight line.

For claim 55, col. 11, lines 12-14 and Figs. 5 and 6 describe a torsion spring (99) that applies a torsion force to the actuating arm (98) relative to the caliper housing (30) to bias the actuating arm (98) to a brake releasing position.

For claim 56, col. 10, lines 46-52 describe how the torsion spring (99) has an end (99c) coupled to the actuating arm (98).

For claim 57, col. 10, lines 46-59 describe how the torsion spring (99) is adjustably coupled to the caliper housing (30).

For claim 58, col. 10, lines 46-59 describe how the torsion spring (99) has an end (99b) adjustably coupled to the caliper housing (30) and an end (99c) fixed relative to the actuating arm (98).

For claim 59, col. 10, lines 46-52 describe how the second end (99c) of the torsion spring (99) is connected to the actuating arm (98).

For claim 60, col. 10, lines 46-52 describe how the caliper housing (30) has a plurality of openings (56) so that the first end (99b) of the torsion spring (99) is selectively inserted into one of the plurality of openings (56) to adjust the first end (99b) relative to the housing (30).

For claims 61 and 65, col. 7, lines 33-49 and Figs. 2, 4 and 13-17 describe and show a cable adjusting bolt (73) coupled to the caliper housing (30) and structured to terminate an outer casing (24a) of a brake cable (19a) and including an opening (73c) through which an inner wire (25a) of the brake cable (19a) passes.

For claims 62 and 66, col. 11, lines 12-29 and Fig. 5 describe how the input cam (90) and the output cam (91) move axially relative to each other without such movement being caused by one of

the input cam member (90) or the output cam member (91) screwing through the other one of the input cam member (90) or the output cam member (91).

For claims 63 and 67, col. 8, line 62 through column 9, line 10; col. 9, lines 28-37; and col. 11, lines 12-29 and Fig. 5 describe and show how a space between the first camming surface (90d) and the second camming surface (91c) increases or decreases during operation of the actuated mechanism.

For claims 64 and 68, it is clear from Fig. 5 that a force from operation of the first camming surface (90d) and the second camming surface (19c) that causes the output cam (91) to move axially is disposed radially outwardly from the bore (91e, Fig. 34) in output cam (91).

Claims 37-53 were rejected under 35 U.S.C. §251 as being improperly broadened by attempting to recapture previously surrendered subject matter. This basis for rejection is respectfully traversed.

The *Clement* case cited in the office action is not applicable to the present situation for the same reason that the Pannu case was not applicable to the same rejection in the previous office action. *Clement* is a typical recapture case wherein a limiting feature was added to an existing element, and then that limiting feature was deleted in the reissue proceeding. More specifically, original claim 1 in the Clement patent was directed to a method for treating waste paper that removes "stickies," such as glues and plastics, under a first set of environmental conditions, before removing inks under a second set of environmental conditions. The original claim recited, *inter alia*, (a) forming an aqueous pulp of said material at low temperature and low specific mechanical energy; (b) separating non-ink contaminants by mechanical separation; (c) softening ink particles by submitting the pulp to high temperature, high shear forces, and at least one de-inking agent under alkaline conditions; and (d) detaching the ink particles by submitting the pulp to high temperature, high shear forces, and at least one chemical dispersing agent under alkaline conditions. During prosecution, these steps were amended, *inter alia*, by limiting step (a) to room temperature and a mechanical energy of lower than 50 KW.H/Ton; by limiting step (b) to room temperature; and by

limiting steps (c) and (d) to a temperature between 85° and 130° C, mechanical energy more than 50 KW.H/Ton, and strong alkaline conditions having a pH of at least 9. In the reissue application, the narrowing features were canceled while retaining the corresponding steps. The Court held that the deletion of the added features constituted an impermissible recapture of previously surrendered subject matter.

In *Meyers*, the claims were directed to features of a night vision system. Each original claim included a pulsing circuit for a light-emitting diode (LED). During prosecution, the patentee distinguished over the prior art by amended the pulsing circuit to add two limitations: (1) that the circuit would pulse on and off at intervals that resulted in the LED being off more often than on; and (2) that the pulsing circuit, when on, would pulse at a substantially higher level of power than it would be able to sustain if left on continuously. The pulsing circuit, including the two added features, was deleted from the claims. The Court held that deletion of the pulsing circuit, together with the two features added to the pulsing circuit to distinguish over the prior art, did not constitute impermissible recapture.

These two cases can be understood by the following analogy: If a claim recites A + B + C and is amended during prosecution to recite A + B + C + C', wherein C' is a feature of element C, then C' cannot be deleted in a reissue proceeding. That is the *Clement* case. However, if a claim recites A + B + C and is amended during prosecution to recite A + B + C + C', wherein C' is a feature of element C, then the claim may be amended in a reissue proceeding to delete C and C' and recite A + B + D, wherein feature D is a narrowing feature independent of element C. That is the *Meyers* case. The patentee in the *Meyers* case was not attempting to recapture protection of A + B + C, but was attempting to protect an independent invention A + B + D.

The present application is similar to *Meyers* in that the original claims recited "first and second cam members", i.e., element "C." During prosecution of the original patent, the first and second cam members were amended to include their respective input and output designations as well as the movement and camming surface features. The added features collectively can be called

feature C'. If the preliminary amendment merely deleted the input and output designations as well as the movement and camming surface features and otherwise kept the two cam members, then the examiner would be correct that *Clement* prevents such an amendment.

However, there is a difference between deleting a limiting *feature* that was added to an element versus deleting the element itself. *Clement* applies to the former, whereas *Meyers* applies to the latter. In other words, the preliminary amendment in this case canceled not just feature C', but element C (the two cams) as well. The actuating arm (equivalent to "element D") was added to protect an invention that is independent of an invention that involves the cams.

Claims 11-15 were rejected under 35 U.S.C. §102(b) as being anticipated by Carre, et al (US 4,582,577). This basis for rejection is respectfully traversed.

Claim 11 has been amended to clarify that the caliper housing has a mounting bracket structured and dimensioned to be attached to a bicycle. Carre, et al discloses a braking device installed on heavy motor vehicles. Carre, et al neither discloses nor suggests a housing with a mounting bracket structured and dimensioned to be attached to a bicycle.

Claims 1-3, 6, 7, 21-25, 32 and 36 were rejected under 35 U.S.C. §103(a) as being unpatentable over Carre, et al in view of Huang (US 6,148,964). This basis for rejection is respectfully traversed. The following comments also apply to any potential rejection of claims 11-15 over these references.

Initially, it is submitted that Carre, et al and Huang are from nonanalogous arts. Carre, et al is directed to the field of heavy motor vehicles, whereas Huang and the present invention are directed to the field of bicycles. Also, Carre, et al is concerned with the problem of decreased braking force caused by weakening of a spring (42) in a control jack (30) as spring (42) relaxes during operation as shown in Fig. 4, or progressive lessening of the effective lever arm of a crank according to a sine law in proportion to the rotation of an actuating lever (22), whereas the invention recited in the rejected claims is concerned with the problem of loss of efficiency of a cam mechanism used to move the brake pads towards the brake rotor when the cam mechanism is moved under high pressure in a

bicycle disk brake. The guide member disposed in the bore recited in the rejected claims solves this problem. Carre, et al is completely silent about any ability to prevent loss of efficiency of a cam mechanism used to move the brake pads towards the brake rotor when the cam mechanism is moved under high pressure, so one of ordinary skill in the bicycle art would not look toward Carre, et al for solutions to the problem of loss of efficiency of a cam mechanism used to move the brake pads towards the brake rotor when the cam mechanism is moved under high pressure in a bicycle disk brake.

Even if Carre, et al and Huang could be considered analogous art, there is no suggestion in the prior art to combine their teachings. First, the office action states that Carre, et al discloses a cable disk brake capable for use with a bicycle. However, there is no basis to conclude that the Carre, et al brake is capable of use with a bicycle. The Carre, et al device is structured and dimensioned for use with heavy motor vehicles such as trucks. The Carre, et al device has no structure that would allow it to be mounted to a bicycle. Also, the geometry of the Carre, et al device is not suitable for bicycles. The Carre, et al device requires a long screw and an even longer piston. Such a geometry would protrude far too much from a bicycle and would risk striking objects while the bicycle is being ridden. This problem does not occur with heavy vehicles.

Also, the office action states that it would be obvious "when having utilized the disk brake assembly of Carre, et al on a bicycle to have provided the bicycle with some sort of mounting bracket as taught by Huang, thus providing an easy means by which to mount the brake assembly to the bicycle." However, this statement improperly assumes that one of ordinary skill in the art would be motivated to structurally modify the Carre, et al device to mount to a bicycle to begin with. As noted above, the Carre, et al device is not used with bicycles and has no structure that would allow it to be mounted to a bicycle. The proper inquiry is whether one of ordinary skill in the art would be motivated to modify the Carre, et al device so that it contains the necessary structure that would allow it to be used with bicycles to begin with. Given the vastly different use and geometry of the Carre, et al device, it is submitted that there is no motivation to modify the Carre, et al device to provide a caliper housing with a mounting bracket structured and dimensioned to be attached to a bicycle. This is especially true since, as noted above, Carre, et al is completely silent about any ability to prevent loss of efficiency of a cam mechanism used to move the brake pads towards the

brake rotor when the cam mechanism is moved under high pressure. One of ordinary skill in the bicycle art simply would not consider Carre, et al for solutions to the problem of loss of efficiency of a cam mechanism used to move the brake pads towards the brake rotor when the cam mechanism is moved under high pressure in a bicycle disk brake.

Claims 37-45 and 47-53 were rejected under 35 U.S.C. §103(a) as being unpatentable over Le Deit, et al (US 5,647,475) in view of Carre, et al and Huang. This basis for rejection is respectfully traversed.

As with Carre, et al, Le Deit, et al also is nonanalogous art because it is directed to a braking device for a motor vehicle, not for bicycles. Furthermore, the problem addressed by Le Deit is the variation of the mounting angle of the actuating arm caused by manufacturing tolerances. As noted previously, Carre, et al is concerned with the problem of decreased braking force caused by weakening of a spring (42) in a control jack (30) as spring (42) relaxes during operation as shown in Fig. 4, or progressive lessening of the effective lever arm of a crank according to a sine law in proportion to the rotation of an actuating lever (22). By contrast, the invention recited in the rejected claims is concerned with the problem of aligning a cable that exits from an opening in a cable support disposed on a bicycle caliper housing. Neither Carre, et al or Le Deit is relevant to this problem.

Furthermore, Le Deit provides a bracing piece (44) with a sheath limit stop (42) that terminates a sheath (40) surrounding a cable (38). Bracing piece (44) includes a curved arm (52) that fits around a cylindrical boss (48) of a caliper (12); limit stops (54) and (55) that define the range of motion of an actuating lever (32); and an arcuate slot (56) that allows bracing piece (44) to be fastened to caliper (12) at a desired angular position using a screw (60). During assembly, bracing piece (44) is rotated around boss (48) until limit stop (54) abuts against lever (32), and then bracing piece (44) is fixed to caliper (12) using screw (60). As a result, as discussed at column 4, lines 8-13, the angular travel of lever (32), or the linear travel of cable (38), between the position at rest shown in Fig. 2 and the extreme position shown in Fig. 3, is independent of the initial position of lever (32). It is important to note from the orientation of bracing member (44) and lever (32) shown in Figs. 2 and 3 that, according to the sine law, the effective lever arm of lever (32) always *increases*. Thus, the

problem that Carre, et al seeks to solve regarding any decrease in effective lever arm *does not occur* in the Le Deit device. Finally, no evidence has been provided that any bicycle brake (or even Le Deit's brake) has ever operated using a spring actuated mechanism such as Carre, et al's control jack (30) such that the operating force decreases as a spring relaxes. Clearly, there is no motivation to replace Le Deit's lever arm (32) with Carre, et al's curved member (50) because the two problems addressed by Carre, et al's curved member (50) do not occur in the Le Deit device, and certainly not in any such device that could be modified for bicycle use.

In addition to the above, neither Le Deit, Carre, et al nor Huang disclose or suggest a protuberance that points toward a cable support where the cable passes through the cable support as recited in amended claim 38, an adjusting mechanism that adjusts a biasing force applied between a caliper housing and an actuating arm in addition to changes of biasing force caused by rotation of the actuating arm relative to the caliper housing as recited in amended claim 43, a cable adjusting bolt fitted within an opening in a cable support through which a cable passes as recited in amended claim 47, a caliper housing that includes a mounting flange with a slot that allows adjustment of the caliper housing to and from the rotor such that the caliper housing is axially fixed relative to the rotor during operation of the actuating arm as recited in amended claim 48 (Le Deit's caliper (12) is a floating caliper as stated at column 2, lines 35-40), a cable that approaches a guide surface from an opening in the cable support essentially in a straight line as recited in new claim 54 (Le Deit's cable is curved), a cable adjusting bolt as recited in new claims 61 and 65, or the cam operation recited in new claims 62-64.

New claims 55-60 recite a torsion spring that applies a torsion force to a lever arm. Accordingly, these claims should be allowable in view of allowable claim 4 and claim 46 which also recite a torsion spring.

Accordingly, it is believed that the rejections under 35 U.S.C. §102, §103 and §251 have been overcome by the foregoing amendment and remarks, and it is submitted that the claims are in condition for allowance. Reconsideration of this application as amended is respectfully requested. Allowance of all claims is earnestly solicited.

Respectfully submitted,

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